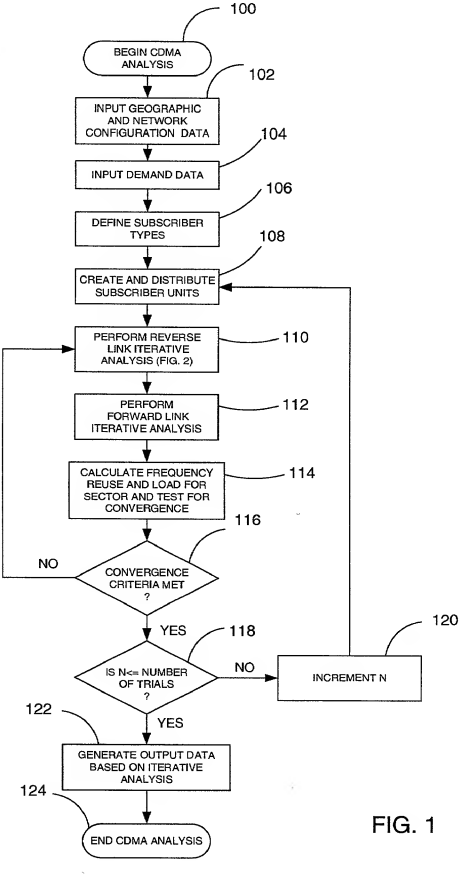

100
BEGIN CDMA ANALYSIS
102
INPUT GEOGRAPHIC AND NETWORK CONFIGURATION DATA
104
INPUT DEMAND DATA
106
DEFINE SUBSCRIBER TYPES
108
CREATE AND DISTRIBUTE SUBSCRIBER UNITS
110
PERFORM REVERSE LINK ITERATIVE ANALYSIS (FIG. 2)
112
PERFORM FORWARD LINK ITERATIVE ANALYSIS
114
CALCULATE FREQUENCY REUSE AND LOAD FOR SECTOR AND TEST FOR CONVERGENCE
116
CONVERGENCE CRITERIA MET ?
NO
YES
118
IS N<= NUMBER OF TRIALS ?
NO
120
INCREMENT N
YES
122
GENERATE OUTPUT DATA BASED ON ITERATIVE ANALYSIS
124
END CDMA ANALYSIS

FIG. 1

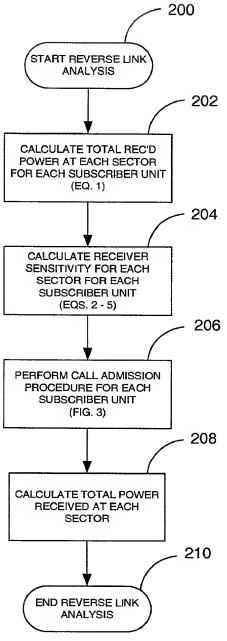
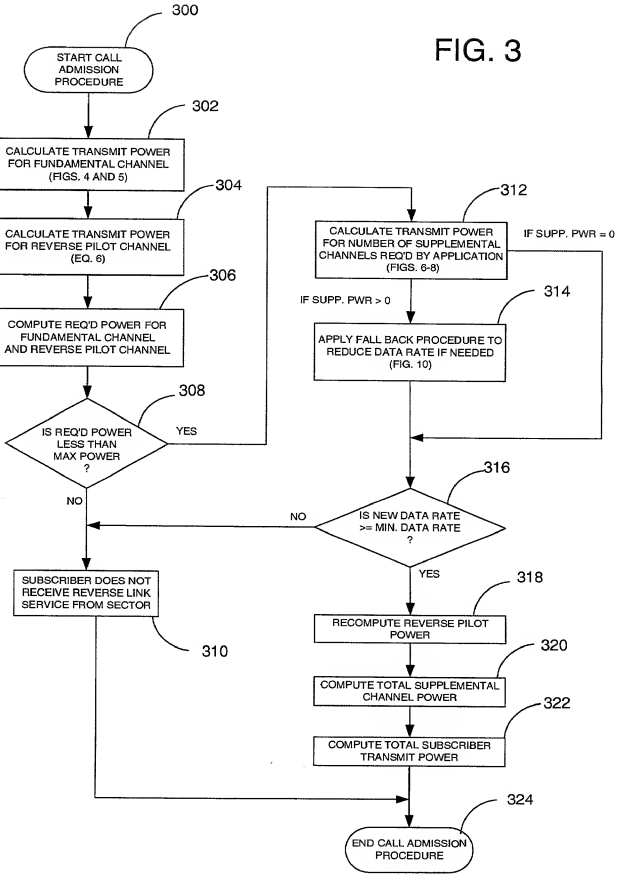

200
START REVERSE LINK ANALYSIS
202
CALCULATE TOTAL REC'D POWER AT EACH SECTOR FOR EACH SUBSCRIBER UNIT (EQ. 1)
204
CALCULATE RECEIVER SENSITIVITY FOR EACH SECTOR FOR EACH SUBSCRIBER UNIT (EQS. 2 - 5)
206
PERFORM CALL ADMISSION PROCEDURE FOR EACH SUBSCRIBER UNIT (FIG. 3)
208
CALCULATE TOTAL POWER RECEIVED AT EACH SECTOR
210
END REVERSE LINK ANALYSIS

FIG. 2

FIG. 3


300
START CALL ADMISSION PROCEDURE
302
CALCULATE TRANSMIT POWER FOR FUNDAMENTAL CHANNEL (FIGS. 4 AND 5)
304
CALCULATE TRANSMIT POWER FOR REVERSE PILOT CHANNEL (EQ. 6)
306
COMPUTE REQ'D POWER FOR FUNDAMENTAL CHANNEL AND REVERSE PILOT CHANNEL
308
IS REQ'D POWER LESS THAN MAX POWER ?
YES
NO
310
SUBSCRIBER DOES NOT RECEIVE REVERSE LINK SERVICE FROM SECTOR
312
CALCULATE TRANSMIT POWER FOR NUMBER OF SUPPLEMENTAL CHANNELS REQ'D BY APPLICATION (FIGS. 6-8)
IF SUPP. PWR = 0
IF SUPP. PWR > 0
314
APPLY FALL BACK PROCEDURE TO REDUCE DATA RATE IF NEEDED (FIG. 10)
316
IS NEW DATA RATE >= MIN. DATA RATE ?
NO
YES
318
RECOMPUTE REVERSE PILOT POWER
320
COMPUTE TOTAL SUPPLEMENTAL CHANNEL POWER
322
COMPUTE TOTAL SUBSCRIBER TRANSMIT POWER
324
END CALL ADMISSION PROCEDURE

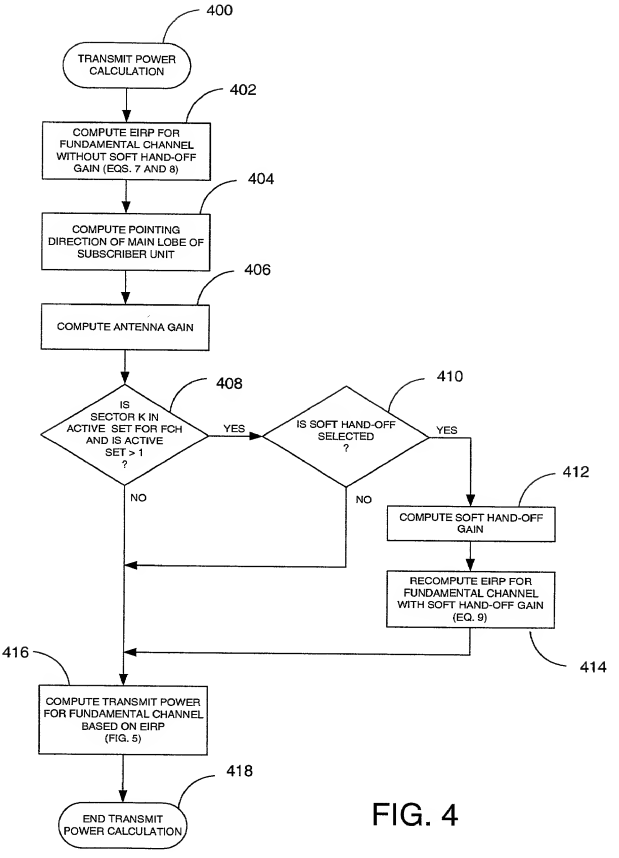

400
TRANSMIT POWER CALCULATION
402
COMPUTE EIRP FOR FUNDAMENTAL CHANNEL WITHOUT SOFT HAND-OFF GAIN (EQS. 7 AND 8)
404
COMPUTE POINTING DIRECTION OF MAIN LOBE OF SUBSCRIBER UNIT
406
COMPUTE ANTENNA GAIN
408
IS SECTOR K IN ACTIVE SET FOR FCH AND IS ACTIVE SET > 1 ?
YES
NO
410
IS SOFT HAND-OFF SELECTED ?
YES
NO
412
COMPUTE SOFT HAND-OFF GAIN
RECOMPUTE EIRP FOR FUNDAMENTAL CHANNEL WITH SOFT HAND-OFF GAIN (EQ. 9)
414
416
COMPUTE TRANSMIT POWER FOR FUNDAMENTAL CHANNEL BASED ON EIRP (FIG. 5)
418
END TRANSMIT POWER CALCULATION

FIG. 4

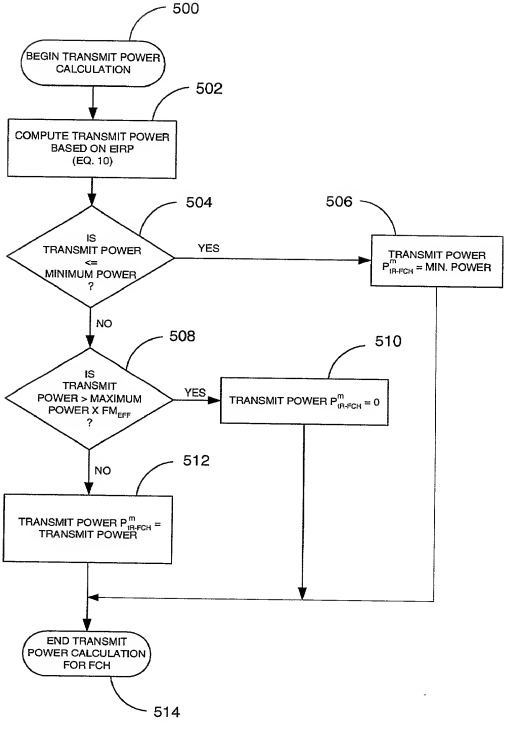

500
BEGIN TRANSMIT POWER CALCULATION
502
COMPUTE TRANSMIT POWER BASED ON EIRP (EQ. 10)
504
IS TRANSMIT POWER <= MINIMUM POWER ?
YES
506
TRANSMIT POWER $P^{m}_{IR\text{-}FCH}$ = MIN. POWER
NO
508
IS TRANSMIT POWER > MAXIMUM POWER X FM_{EFF} ?
YES
510
TRANSMIT POWER $P^{m}_{IR\text{-}FCH}$ = 0
NO
512
TRANSMIT POWER $P^{m}_{IR\text{-}FCH}$ = TRANSMIT POWER
END TRANSMIT POWER CALCULATION FOR FCH
514

FIG. 5

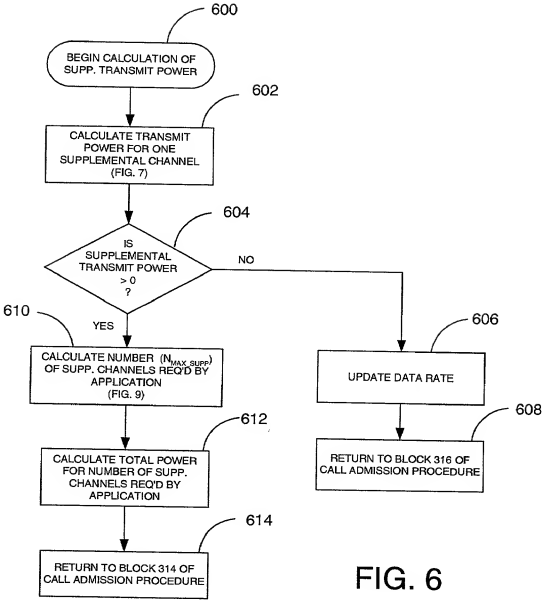

600
BEGIN CALCULATION OF SUPP. TRANSMIT POWER
602
CALCULATE TRANSMIT POWER FOR ONE SUPPLEMENTAL CHANNEL (FIG. 7)
604
IS SUPPLEMENTAL TRANSMIT POWER > 0 ?
NO
YES
610
606
CALCULATE NUMBER ($N_{MAX\ SUPP}$) OF SUPP. CHANNELS REQ'D BY APPLICATION (FIG. 9)
UPDATE DATA RATE
612
608
CALCULATE TOTAL POWER FOR NUMBER OF SUPP. CHANNELS REQ'D BY APPLICATION
RETURN TO BLOCK 316 OF CALL ADMISSION PROCEDURE
614
RETURN TO BLOCK 314 OF CALL ADMISSION PROCEDURE

FIG. 6

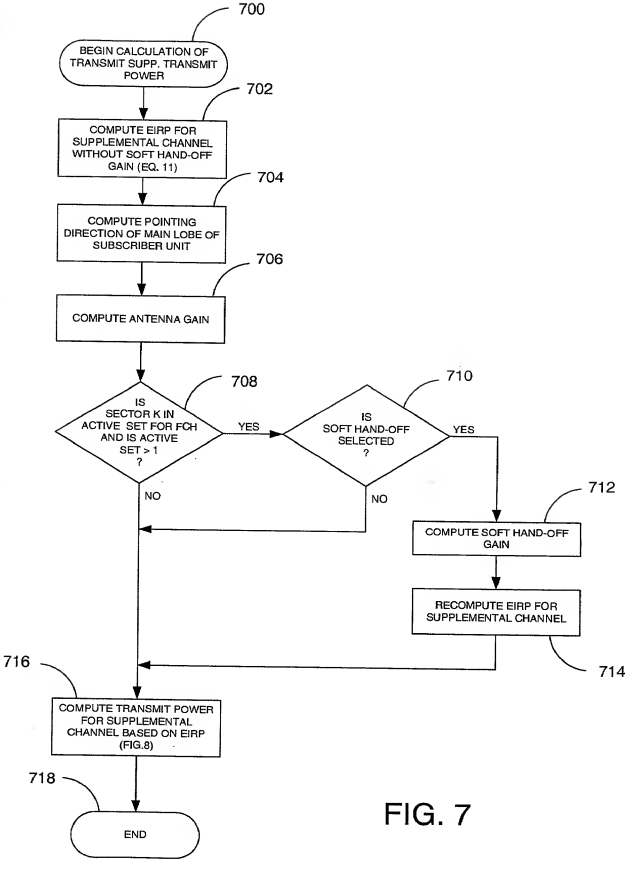

700
BEGIN CALCULATION OF TRANSMIT SUPP. TRANSMIT POWER
702
COMPUTE EIRP FOR SUPPLEMENTAL CHANNEL WITHOUT SOFT HAND-OFF GAIN (EQ. 11)
704
COMPUTE POINTING DIRECTION OF MAIN LOBE OF SUBSCRIBER UNIT
706
COMPUTE ANTENNA GAIN
708
IS SECTOR K IN ACTIVE SET FOR FCH AND IS ACTIVE SET > 1 ?
YES
NO
710
IS SOFT HAND-OFF SELECTED ?
YES
NO
712
COMPUTE SOFT HAND-OFF GAIN
RECOMPUTE EIRP FOR SUPPLEMENTAL CHANNEL
714
716
COMPUTE TRANSMIT POWER FOR SUPPLEMENTAL CHANNEL BASED ON EIRP (FIG.8)
718
END

FIG. 7

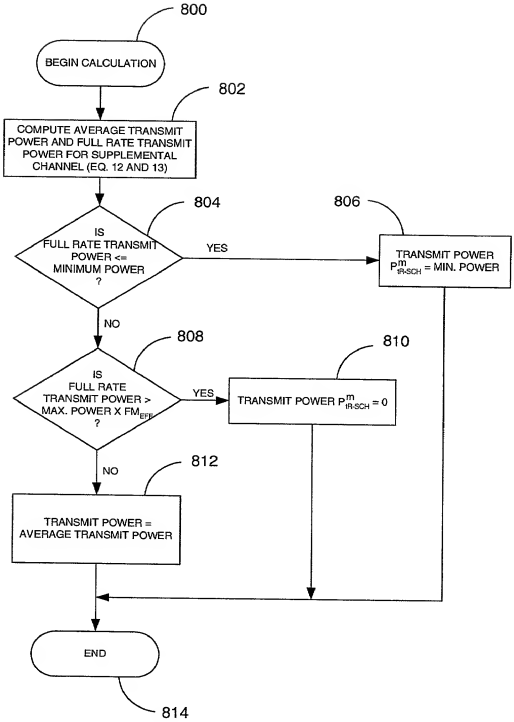

800
BEGIN CALCULATION
802
COMPUTE AVERAGE TRANSMIT POWER AND FULL RATE TRANSMIT POWER FOR SUPPLEMENTAL CHANNEL (EQ. 12 AND 13)
804
IS FULL RATE TRANSMIT POWER <= MINIMUM POWER ?
YES
806
TRANSMIT POWER $P^m_{IR\text{-}SCH}$ = MIN. POWER
NO
808
IS FULL RATE TRANSMIT POWER > MAX. POWER X FM_{EFF} ?
YES
810
TRANSMIT POWER $P^m_{IR\text{-}SCH} = 0$
NO
812
TRANSMIT POWER = AVERAGE TRANSMIT POWER
END
814

FIG. 8

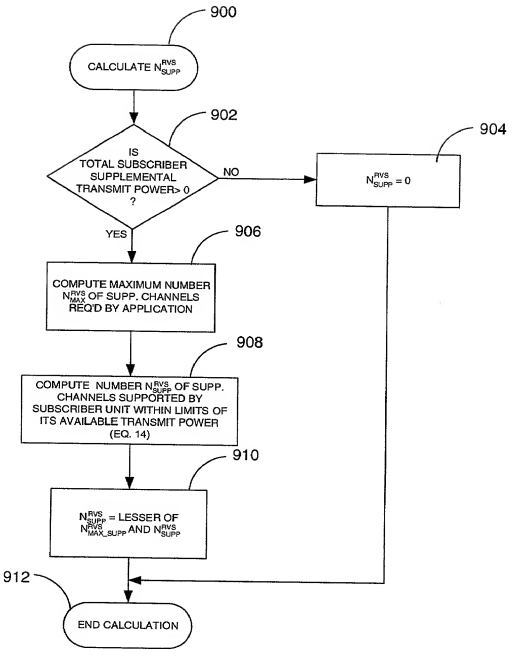

900
CALCULATE N^{RVS}_{SUPP}
902
IS TOTAL SUBSCRIBER SUPPLEMENTAL TRANSMIT POWER> 0 ?
NO
904
$N^{RVS}_{SUPP} = 0$
YES
906
COMPUTE MAXIMUM NUMBER N^{RVS}_{MAX} OF SUPP. CHANNELS REQ'D BY APPLICATION
908
COMPUTE NUMBER N^{RVS}_{SUPP} OF SUPP. CHANNELS SUPPORTED BY SUBSCRIBER UNIT WITHIN LIMITS OF ITS AVAILABLE TRANSMIT POWER (EQ. 14)
910
N^{RVS}_{SUPP} = LESSER OF $N^{RVS}_{MAX_SUPP}$ AND N^{RVS}_{SUPP}
912
END CALCULATION

FIG. 9

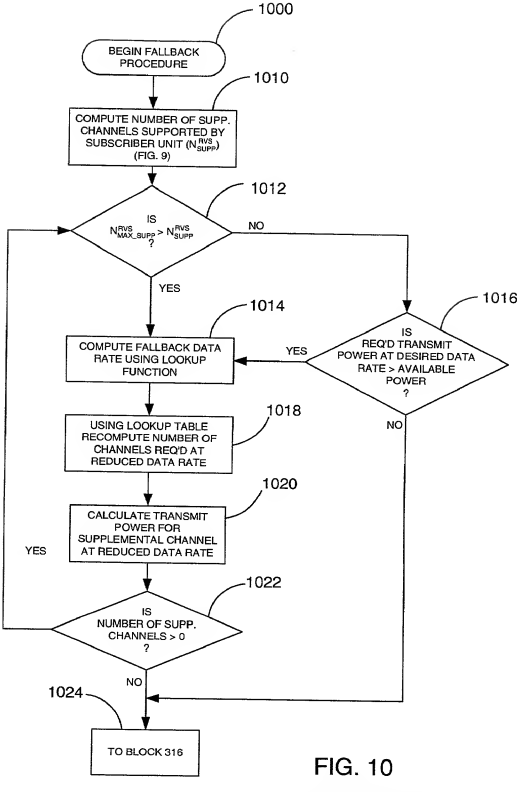
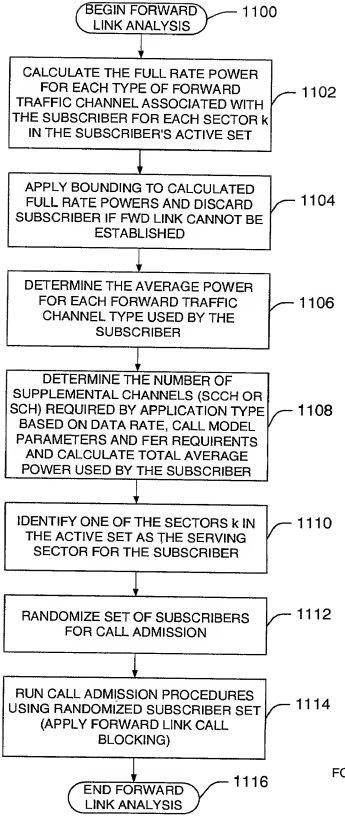


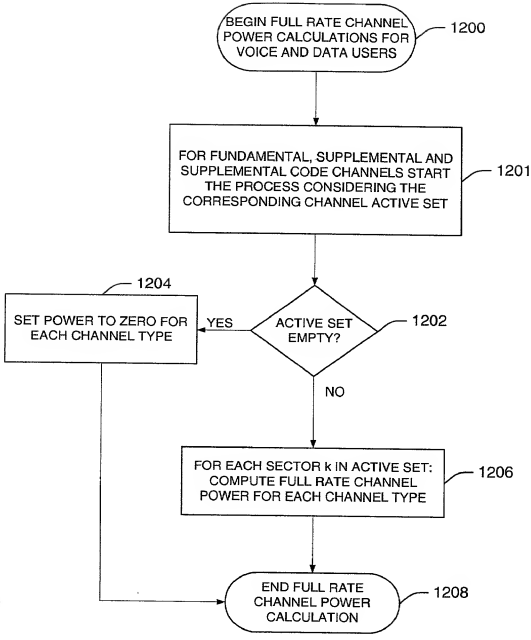
FIG. 10

FALLBACK PROCEDURE

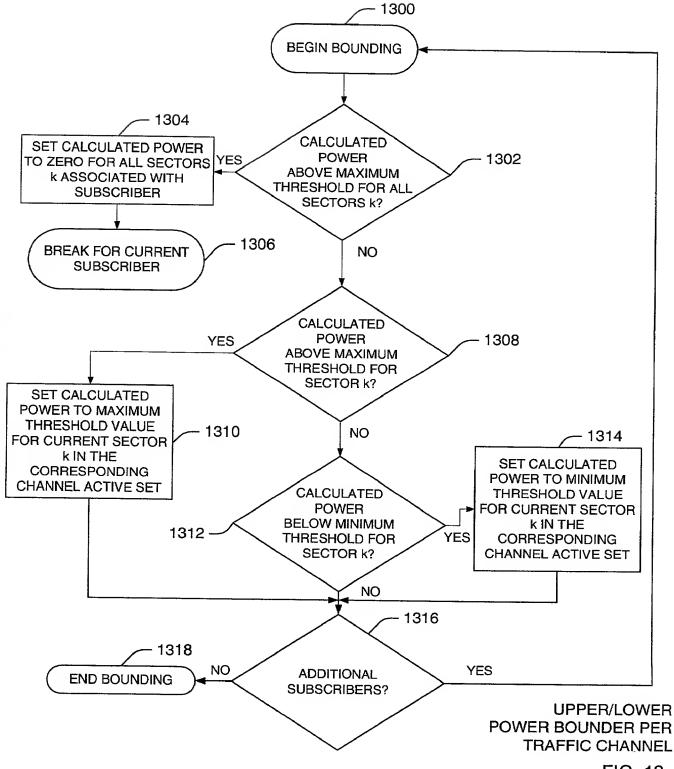


FORWARD LINK ANALYSIS OVERVIEW

FIG. 11

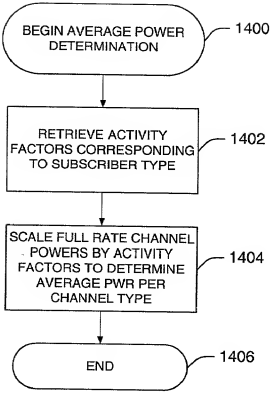


FULL RATE FORWARD TRAFFIC CHANNEL CALCULATIONS
FIG. 12



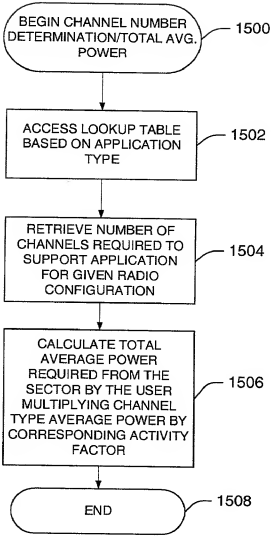
UPPER/LOWER POWER BOUNDER PER TRAFFIC CHANNEL

FIG. 13



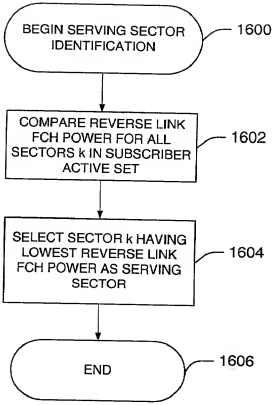
DETERMINE AVERAGE POWER PER FORWARD CHANNEL TYPE

FIG. 14



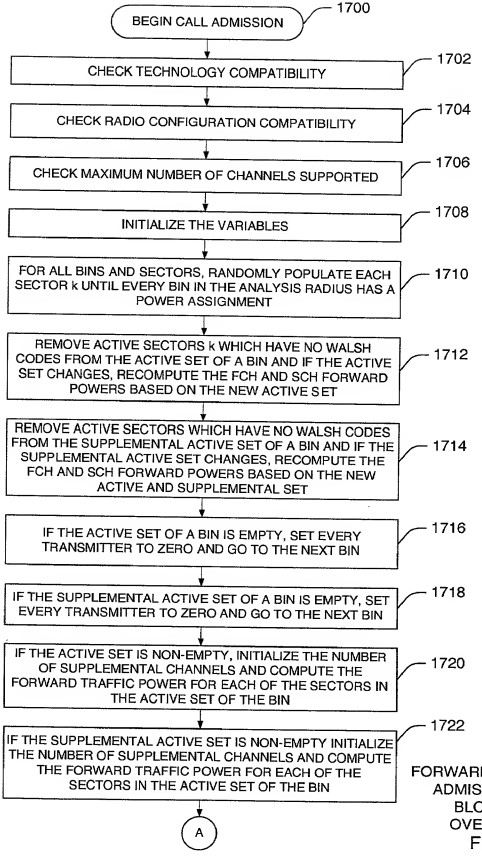
DETERMINE TOTAL AVERAGE POWER PER SUBSCRIBER

FIG. 15

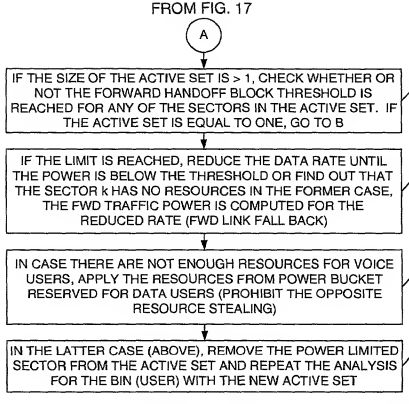


IDENTIFY SERVING SECTOR FOR TWO-WAY COMMUNICATIONS PER SUBSCRIBER

FIG. 16

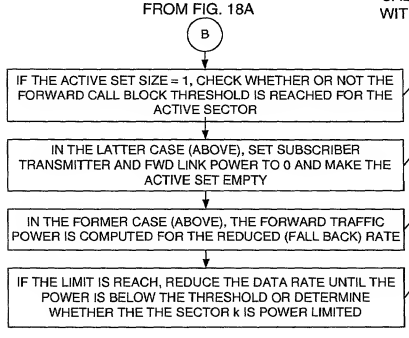


FORWARD CALL ADMISSIONS/ BLOCKING OVERVIEW
FIG. 17



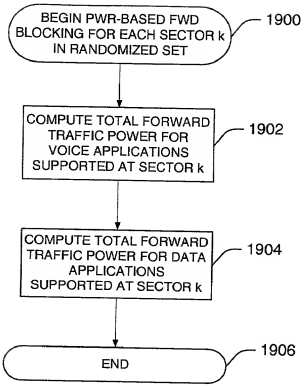
CALL BLOCKING WITH HAND-OFF

FIG. 18A



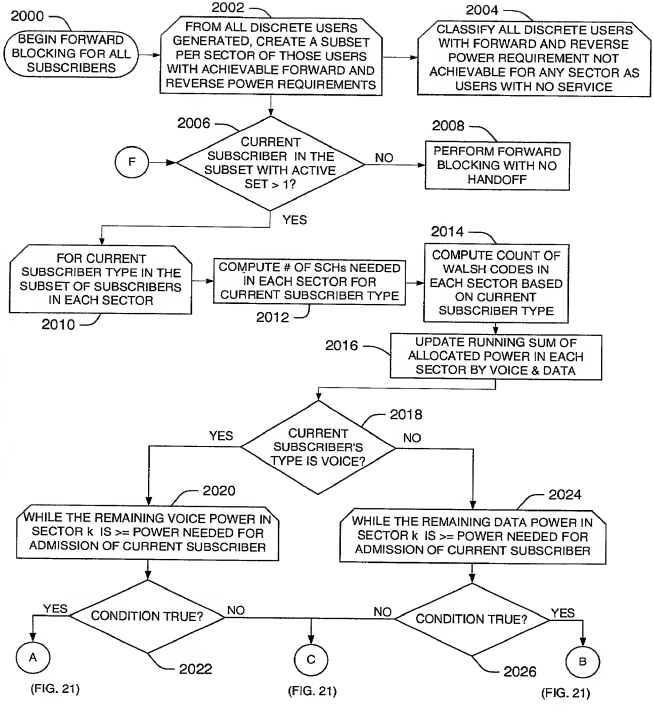
CALL BLOCKING, NO HAND-OFF

FIG. 18B



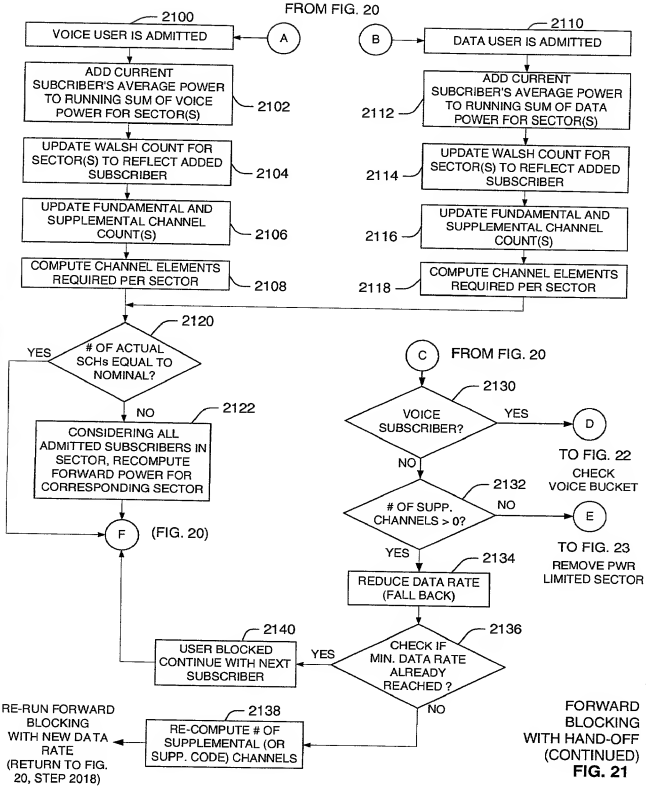
TOTAL VOICE AND DATA PWR PER SECTOR

FIG. 19



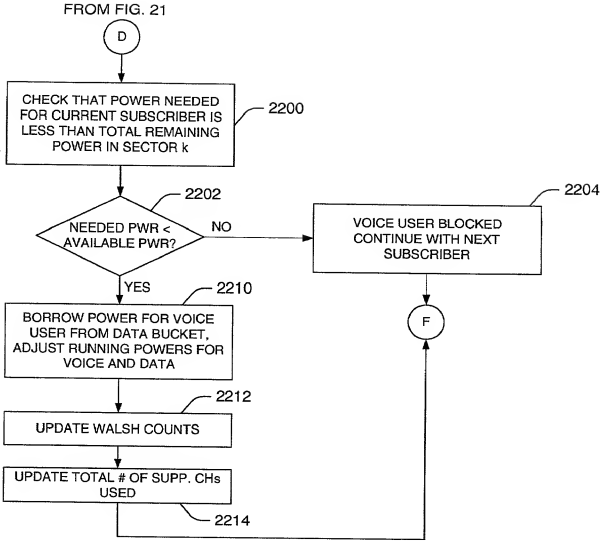
FORWARD BLOCKING DETAILS (WITH HAND-OFF)

FIG. 20

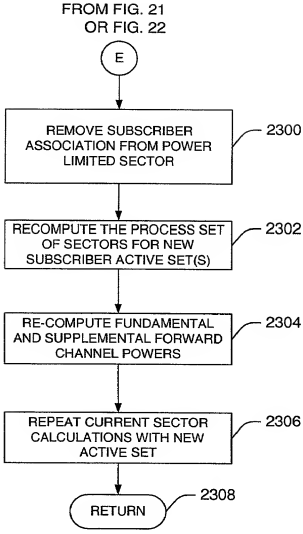


FORWARD BLOCKING WITH HAND-OFF (CONTINUED)

FIG. 21

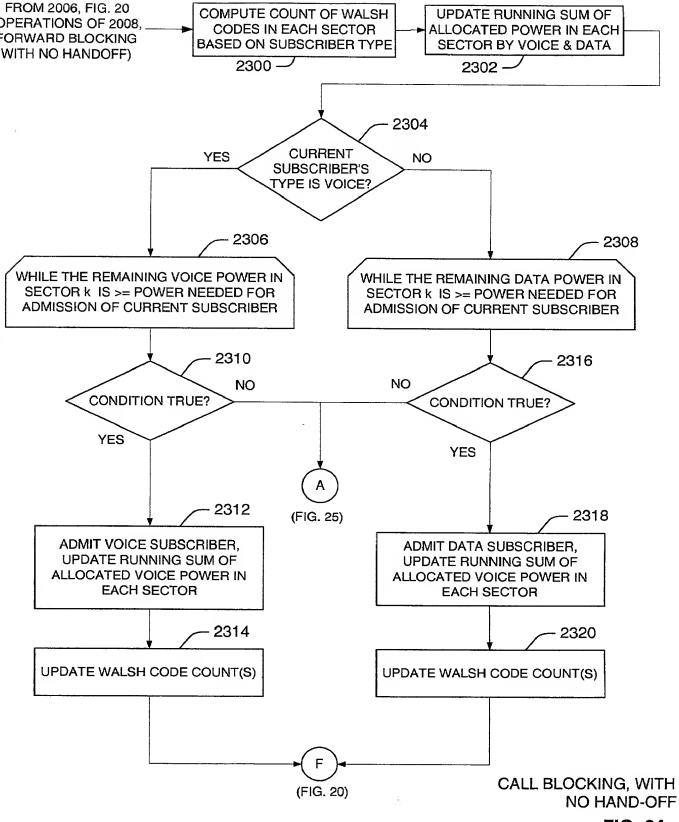


VOICE SUBSRIBER
CALL ADMISSION VOICE
BUCKET CHECK
FIG. 22



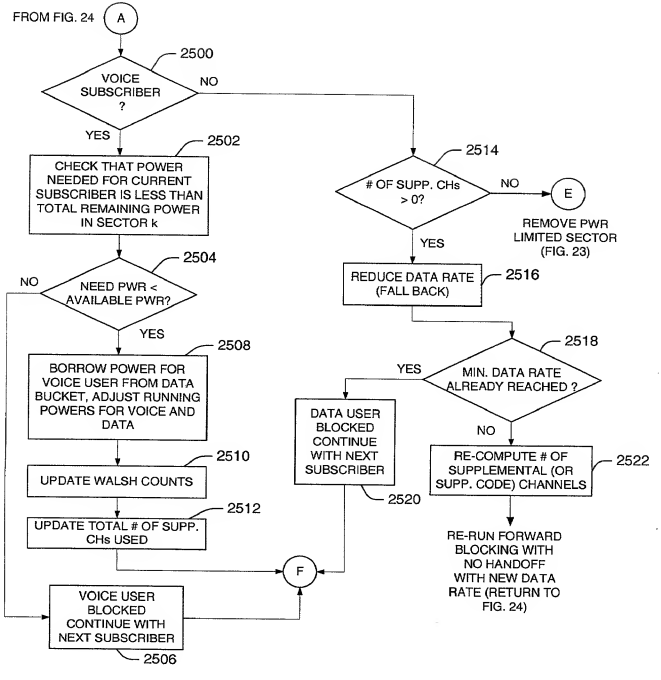
REMOVE POWR
LIMITED SECTOR

FIG. 23



CALL BLOCKING, WITH NO HAND-OFF

FIG. 24



CHECK VOICE BUCKET (BLOCKING WITH NO HAND-OFF CONTINUED)

FIG. 25